

What is claimed is:

1. A linear motor comprising:
 - an outer case;
 - 5 a stator installed at the inner side the outer case and having a first and a second armature coil parts;
 - 10 a rotor includes a first to a third shafts assembled in the inner side of the first and the second armature coil parts of the stator;
 - 15 a first permanent magnet part having a plurality of permanent magnets; and
 - a second permanent magnet part having a plurality of permanent magnets assembled on the outer circumferential surface of the third shaft.
2. The linear motor according to claim 1, wherein the first armature coil part of the stator is disposed in the annular type to fit the outer case.
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3. The linear motor according to claim 1, wherein the second armature coil part of the stator is assembled in the outer case in the perpendicular direction to the first armature coil part.

4. The linear motor according to claim 1,
wherein the first to the third shafts are provided with
a neutral zone (which corresponds to the second shaft
portion) therebetween, having a predetermined interval
5 between the first permanent magnet part assembled on the
outer circumferential surface of the first shaft and the
second permanent magnet part assembled on the outer
circumferential surface of the second shaft.
- 10 5. The linear motor according to claim 1,
wherein the first permanent magnet is arranged in a ring
type on the outer circumferential surface of the shaft.
6. The linear motor according to claim 1,
15 wherein the second permanent magnet is arranged on the
outer surface of the third shaft in the vertical
direction.